



CALIFORNIA HYDROGEN HIGHWAY NETWORK



CA H2 NET BLUEPRINT PLAN FACT SHEET

Blueprint Plan for a Hydrogen Economy

Our state has long been a leader in the development of advanced near-zero and zero-emission vehicle technologies, including those fueled by hydrogen. To continue this leadership and pursue a variety of important benefits for all Californians, Governor Arnold Schwarzenegger directed the California Environmental Protection Agency (CalEPA) to develop a “blueprint plan” that will expedite availability of hydrogen fueling stations and products that use hydrogen. The blueprint plan was developed through a collaborative process with input from more than 200 stakeholders.

The CA H2 Net blueprint plan outlines a strategy to:

- Build the CA H2 Net in a way that ensures maximum benefits to California’s economy, environment and energy security
- Accelerate hydrogen vehicle introduction, station placement and stationary fuel cell uses in California
- Implement the CA H2 Net in three phases, with goals and strategies established according to technological readiness and vehicle rollout

The three phases of implementation are:

Type of Hydrogen Fueled Vehicle or Product	Number of Units Targeted / Estimated for Deployment, by Phase		
	Phase I: 50-100 stations	Phase II: 250 stations w/ initial lower usage	Phase III: 250 stations w/ expanded usage
Light-duty FCVs & ICEVs from major manufacturers	2,000	10,000	20,000
Heavy-duty FCVs or ICEVs	10	100	300
Stationary and off-road vehicles applications	5	60	400
FCV = Fuel Cell Vehicle ICEV = Internal Combustion Engine Vehicle			



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- Prepare the way for further and rapidly growing hydrogen use by:
 - Streamlining codes, standards and permit processes
 - Educating Californians about the need for transitioning to hydrogen
 - Attracting hydrogen business, intellectual sharing, and investment to California
 - Preparing the workforce for a hydrogen economy through education and training
 - Expanding research and development for hydrogen vehicle, stationary fuel cell and fueling technology
- Recognize the role of near-term bridging technologies and potential for a mix of transportation technologies to play a role in the future

Commitments

The blueprint plan establishes the following commitments for California:

- Achieve Phase I by 2010
- Work to achieve Phases II and III at an accelerated pace as determined appropriate through biennial technology and market reviews
- Ensure maximum environmental benefits, including a 20% renewable energy goal for hydrogen production (in excess of the state's Renewable Portfolio Standard, or RPS goal), no increase in smog forming or toxic pollutants and a 30% reduction in greenhouse gas emissions.

Station Siting Strategy

Where: Specific locations for station placements are not determined at this stage. What have been established are criteria to prioritize where the stations should go during implementation. Initially, the stations should be placed in areas of highest use. This means matching stations with vehicles, which are most likely to be placed in fleets (or "clusters") in demonstrations.

California's major metropolitan areas are listed in the blueprint plan as examples of station concentrations (Los Angeles, Sacramento, San Diego, San Francisco), but the site locations will be highly dependent upon a combination of factors. For instance, ultimate station locations will have support within fleets or demonstration programs in the area, auto manufacturers will have the right vehicle for the site application, energy providers will be ready to invest and support the demonstration, and there will be government support with funding and facilitation.



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Public-private partnerships are critical to initiating these initial stations in order to move the technology along while in its pre-commercial stage, and allow development and experience gathering.

When: The target for Phase I is 2010. Stations are being built now in California through various programs, notably the South Coast Air Quality Management District (SCAQMD), U.S. Department of Energy (U.S. DOE), and California Fuel Cell Partnership (CaFCP) efforts. Additional stations will be installed as the vehicle population grows. In order to do this, there needs to be close monitoring, coordination, and integration of information to keep the stations at pace with vehicle demand and to maximize the effectiveness of the infrastructure network.

How Many: The blueprint plan targets 50 – 100 hydrogen stations for Phase I (2010). California's hydrogen infrastructure goals are aggressive, but realistic, and will be carefully coordinated with the expected demand for hydrogen. Experience from previous alternative fuel and vehicle deployments has shown that building stations without demand will not accelerate the technology adoption. A multi-pronged effort is needed with support from government (incentives/requirements/coordination), industry (technology for vehicles/stations), and users (operators/consumers).

Cost

How Much: As established by the work of the Advisory Panel, the blueprint plan outlines an estimated cost to the State over the next five years of approximately \$54 million to help fund 50 – 100 hydrogen stations, purchase hydrogen vehicles for the state fleet, and provide appropriate incentives. In the 2005 State budget, \$6.5 million was directed to the Air Resources Board to co-fund up to 3 stations, place 12 hydrogen vehicles in state fleets and place 2 hydrogen shuttle buses into service. It is expected that the experience gained from this program will be used to determine the appropriate level of future State funding.

Who Will Pay: The CA H2 Net will be paid for through public-private partnerships (i.e.: both industry and government). There is already heavy investment in California's hydrogen infrastructure – the first 39 stations are already being funded through existing public-private partnerships such as those with the U.S. DOE, South Coast AQMD and CaFCP.